



HYBRID COMMUNITY-BASED MONITORING SYSTEM (HCMS)

Summary of learning

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BACKGROUND

Cocoa farming and timber harvesting play crucial roles in Ghana's national economy and, with demand for those commodities on the rise, form the basis of livelihoods for millions of smallholder farmers. These activities, however, continue to drive deforestation and land degradation, compounding the increasing effects of climate change. This is true in the Sui River cocoa-forest landscape in Sefwi Municipality in Western North Region of Ghana, where illegal cocoa farms have increased the rate of deforestation in and around forest reserves over the last 20 years.

To address the challenges above, the Rainforest Alliance and its partners established a multi-stakeholder Landscape Management Board (LMB) – “Sefwi LMB” – in the Sui River cocoa-forest landscape in Sefwi Municipality in Western North Region of Ghana. The LMB is made up of

representatives of the district government, traditional rulers, cocoa producers, community leaders and the private sector. The LMB has developed a landscape action plan, which serves as a framework for implementing restoration interventions that collectively address major social and environmental challenges, such as land degradation, biodiversity loss, inadequate sustainable rural livelihoods, and climate change mitigation and adaptation.

The LMB has made some progress in monitoring activities in the landscape using its governance structure and available participatory tools and frameworks. However, they need to empower communities and local people to own and lead a Monitoring and Evaluation (M&E) process that is collaborative, all-inclusive, science-based, credible, and aligned with national and global landscape measuring protocols.



A HYBRID MONITORING SYSTEM

The goal of this 3-year project was to design and develop a Hybrid Community-based Monitoring System (HCMS) that combines GPS and remote sensing with on-the-ground data from the key landscape stakeholders for data management and reporting at a landscape level.

The HCMS consists of three components:

- 1)** A mobile application that serves to collect data on tree registration, tree seedlings distribution and survival rate, farmer trainings, and monitoring additional livelihood activities, among others.
- 2)** A data hub where all data sets collected are saved and displayed. This repository consists of the maps, dashboards, and reporting with regards to tree registration. It also contains data related to trainings being held in the landscape, additional livelihood activities, gender dynamics, deforestation monitoring and verifications, among other indicators across the landscape.
- 3)** A Land Use Land Cover (LULC) tool that helps monitor a landscape's land cover against some land use activities. The LULC tool utilises the power of Google Earth Engine and combines the optical (LANDSAT) and Synthetic Aperture Radar (Sentinel-1) images to produce poignant LULC information covering the landscape.

DESIGNING WITH THE COMMUNITY

It was crucial to involve the community from the beginning to build a solution that meets their needs and priorities. The project organised a series of design workshops to gather input and feedback from community members, maintaining the conversation through the development and testing phase. Regular trainings gave community members a better understanding and appreciation of the system and the confidence to use it. This was especially the case with the mobile application. Enumerators are now able to collect data faster and more easily than with other data collection tools.

EMPOWERING COMMUNITIES

To achieve long-term resource management and conservation goals, local people must be empowered to undertake regular monitoring, leading to active and progressively sustainable natural-resource governance, management, and protection. Two LMBs in the Sui River area are currently in the process of adopting the HCMS and Rainforest Alliance is working to roll it out to additional LMBs in the Bibibiani Anhwiaso Bekwai District through the [Landscape and Environmental Agility across the Nation \(LEAN\) project](#), funded by the European Union.

The HCMS will also be expanded to other landscapes in Côte d'Ivoire through the USAID-funded Resilient Ecosystems and



Sustainable Transformation of Rural Economies (RESTORE) project. Discussions are also being held to encourage some certificate holders to use the system for tree registration within their working area. Learnings will be shared with other Rainforest Alliance programs for potential expansion.

RECOMMENDATIONS FOR OTHER SUSTAINABILITY SYSTEMS

Investing in innovation and technology for sustainability systems to drive landscape level sustainability helps streamline many processes. Innovation often implies designing and building something new, but much can be done with existing tools and technologies. We recommend sustainability systems leverage existing tools and technologies to build systems for data collection, processing, and management. The challenges may be daunting, but the output is very useful.

At the heart of the success of this project is how the system leveraged mobile technology for data collection. Enumerators found the mobile app easy to use, and the data was loaded into the data hub seamlessly, greatly reducing the risk of human error.

Additionally, spatial demands in measuring sustainability at the landscape level is more crucial now than ever before. By integrating and collecting geodata, we can locate and contextualise interventions, and better address the issues affecting the landscape.

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